



# Supplement Analysis

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Supplement Analysis for the Immobilization of Plutonium-  
Bearing Materials at the Plutonium Finishing Plant,  
Hanford Site, Richland, Washington

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## INTRODUCTION

The U.S. Department of Energy (DOE) is immobilizing approximately 270 kg of plutonium-bearing materials presently stored at DOE's Plutonium Finishing Plant (PFP), located at the Hanford Site near Richland, Washington. The environmental impacts of the immobilization alternative were analyzed in DOE/EIS-0244-F; *Final Environmental Impact Statement, Plutonium Finishing Plant Stabilization* (PFP EIS), which was issued in May 1996. In the Record of Decision (61 FR 36352, July 10, 1996), DOE determined that "...Plutonium-bearing material having low plutonium content (less than 50 weight percent) and meeting criteria established by DOE may be immobilized through a cementation process at the PFP Facility. All immobilized material will be transferred to solid waste management facilities at the Hanford Site and, as a consequence, will be removed from safeguards control."

Section 1502.9(c) of the Council on Environmental Quality Regulation for Implementing the Procedural Provisions of NEPA, 40 CFR Parts 1500-1508, requires the preparation of a Supplemental Environmental Impact Statement if (1) the agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (2) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. Section 1021.314(c) of the DOE NEPA Regulations (10 CFR 1021, 61 FR 36222, July 9, 1996) provides that, where it is unclear whether an EIS supplement is required, DOE will prepare a Supplement Analysis to support a DOE determination with respect to the criteria of 40 CFR 1502.9(c). The purpose of this Supplement Analysis, prepared in accordance with Section 1021.314 of the DOE NEPA regulations, is to provide a basis for a determination of whether or not an EIS supplement is required prior to packaging the concreted plutonium-bearing materials.

## BACKGROUND

The presence of significant quantities of plutonium-bearing materials in the PFP poses unacceptable risks to workers, the public, and the environment. In the PFP EIS, the DOE evaluated the impacts on the human environment of (1) stabilization of some residual, plutonium-bearing materials to a form suitable for interim storage at the PFP; (2) immobilization of some residual plutonium-bearing materials which would be transported to, and managed at, Hanford Site solid waste management facilities; and (3) removal of readily retrievable, plutonium-bearing materials left behind in process equipment, process areas, and air and liquid waste management systems as a result of historic uses.

Immobilization, as described in Chapter 3 and Appendix E of the PFP EIS, consists of cementing candidate plutonium-bearing materials, packaging the cemented materials in appropriate shipping packages, and transporting the packages to a Hanford Site solid waste management facility. The analysis in Appendix E focused on a pipe-container-in-drum packaging method. At the time it appeared that the pipe-container-in-drum was the best packaging method. This method was proposed because it is desirable to minimize the number of packages for a number of reasons: (1) less handling is required with fewer drums, thereby reducing worker exposure; (2) both onsite and offsite transuranic waste storage capacities are limited; and (3) the costs associated with handling, shipping, and storing the packages are reduced.

Appendix E of the PFP EIS identified alternative packaging methods such as standard waste boxes and 55-gallon drums without the pipe-container-in-drum. The analyses of impacts were based on the pipe component package, but no credit was taken for shielding from the pipe.

#### IMMOBILIZATION OF PLUTONIUM-BEARING MATERIALS

The immobilization activity is being conducted at the PFP, which is located in the 200 West Area of the Hanford Site. The PFP is approximately 7 miles from the Columbia River, the nearest natural watercourse. The nearest population center is the city of Richland, about 31 miles away.

The immobilization activity involves cementing candidate plutonium-bearing materials, packaging containers with the cemented materials in appropriate shipping packages, and transporting the packages to a Hanford Site solid waste management facility. The PFP Complex now plans to package cemented plutonium-bearing material in 55-gallon drums with or without the pipe-container-in-drum. The packaging would be conducted in accordance with approved procedures.

#### COMPARISON OF CURRENT CONCEPT TO PFP EIS PROJECTION

The only anticipated change from the process described and analyzed in Appendix E of the PFP EIS is the packaging method; i.e., the pipe-container-in-drum may not be used. Instead of stacking the containers of cemented material within a pipe, which would be centered inside the drum, the containers may be packaged in a 55-gallon drum without a pipe component.

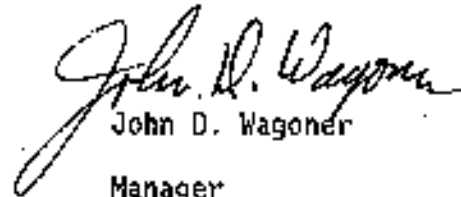
The immobilization activity with the proposed packaging change described in this supplement analysis is not expected to impact flora, fauna, air quality, geology, hydrology/water quality, or land use plans in any substantially different manner than the alternative described in the PFP EIS.

The plutonium-bearing materials, the cementation process, the transportation of packages to a Hanford Site solid waste management facility, and the dose and health effects described in the PFP EIS are anticipated to remain the same. That is, as discussed in the PFP EIS, the projected number of packages (i.e., approximately 1,600 55-gallon drums) is based on the total quantity of plutonium (i.e., approximately 170 grams of plutonium) that will be packaged in each drum. Because the quantity of plutonium to be placed in each drum is not being changed, the total number of drums should not be affected. Therefore, the potential worker exposure (74 person-rem) would not change. Further, with the same number of drums, no different impacts to available Hanford Site storage capacities or costs would be expected.

## CONCLUSION

The alternate packaging method for immobilized PFP plutonium-bearing materials does not change the impacts to the environment compared to the configuration analyzed in the PFP EIS. There are no significant circumstances or new information relevant to environmental concerns associated with the alternate packaging method. Therefore, no EIS supplement is necessary, and no additional NEPA review is required.

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